



Report on the National Consensus Estimates on HIV and AIDS in Ukraine as of end of 2005¹

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Executive Summary

Based on the latest national consensus estimates, at the end of 2005 there were 377,600 people infected with HIV-infection living in Ukraine. This includes an estimated 171,940 women living with HIV (45.5%), and 205,660 men living with HIV (54.4%) of all ages. These figures include 344,373 adults (age 15-49) who are estimated to be living with HIV, which represents 1.46% of the adult population of Ukraine – the highest HIV prevalence rate in Europe.² In 2005, it is estimated that 57,150 people were newly infected with HIV in Ukraine – the highest number of new annual infections to date. These data are in sharp contrast to the registered HIV data, which reports that 62,888 individuals registered as living with HIV-infection at the end of 2005.³ The difference between these figures suggests that only 16%, or one in six people currently living with HIV in Ukraine have been tested and are aware that they are infected with HIV.

These figures represent the outcome of the latest national consensus estimates on HIV and AIDS in Ukraine, as of the end of 2005. All national and international organizations involved in surveillance and monitoring of HIV and AIDS in Ukraine contributed to the development of these estimates.

The authors of these estimates encourage the accurate and consistent citation of these figures as the official estimates for the status of HIV and AIDS in Ukraine at the end 2005.

Background

The previous national estimates on HIV and AIDS in Ukraine indicated that there were approximately 360,000 people living with HIV and AIDS in Ukraine at the end of 2003. However, these estimates were developed by WHO/UNAIDS in 2004, based on the best data available at that time. Since 2004, the HIV and AIDS epidemic in Ukraine has continued to grow unabated, and extensive national research has been conducted to estimate more accurately the size of populations most at-risk for HIV, and the extent to which they are affected by HIV. In this period, there has also been a determined effort to facilitate the development of national estimates for HIV and AIDS in country, led by national partners, with technical assistance provided by WHO and UNAIDS.

As of the end of 2005, the Ministry of Health of Ukraine had reported 88,628 individuals who have been officially registered as HIV-positive in Ukraine since HIV surveillance began in 1987. It is widely accepted that these data underestimate the scale of HIV/AIDS epidemic in Ukraine and do not represent the total number of people infected with HIV. The official data only provides information about persons who have been tested, diagnosed with HIV and included into the official national registry of HIV cases. A large and indeterminate proportion of people in Ukraine remain unaware that they are infected with HIV, emphasizing the importance of developing more up-to-date and accurate estimates of the magnitude of the HIV and AIDS epidemic.

Clinical progression from HIV-infection to AIDS and death is occurring with alarming frequency in Ukraine, with 13,159 people diagnosed with AIDS, and over 7,570 people having died of AIDS as of

¹ Ukrainian AIDS Centre; Ministry of Health of Ukraine; World Health Organization; International HIV/AIDS Alliance in Ukraine; Joint United Nations Programme on HIV/AIDS. Correspondence to: Y.V.Kruglov, Ukrainian AIDS Centre; Vul. Amosova 5, Kyiv, Ukraine 03038; Email: spid@g.com.ua

² UNAIDS/WHO AIDS Epidemic Update: December 2005, p. 49.

³ Data of the Ministry of Health's Ukrainian AIDS Centre (June 2006). Data as of December 31, 2005.

the end of 2005. This includes 4,217 people who were newly diagnosed with AIDS in 2005, an increase of over 50% from the previous year. AIDS mortality is also rapidly increasing, with a record of 2,188 people who died of AIDS in 2005.

Of the 88,628 individuals who have been officially registered as HIV-positive in Ukraine, at the end of 2005 only 62,888 people were confirmed to be living with HIV and under medical observation through the network of regional AIDS centres in Ukraine, with others either having died or been lost to follow-up. At the end of 2005, official statistics also reported 5,100 patients who have been diagnosed with AIDS and urgently need access to antiretroviral treatment (ART).

At the end of 2005, there were a total of 3,186 patients are currently enrolled into ART treatment in Ukraine. For the majority of these patients – over 2,700 – the cost of ART was covered by the Programme “Overcoming the HIV/AIDS Epidemic in Ukraine” with funding from the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM). Other patients were covered under the state budget and other sources.

The previous estimates also lacked information about the number of AIDS patients currently in need of ART and estimates of how many will require treatment in the next 3-5 years. This data is critically needed to inform the development of a national road map on Universal Access to prevention, treatment, care and support.

Process of development of the new national HIV and AIDS estimates

In April 2005, WHO/Euro, in partnership with UNAIDS/WHO Reference Group on HIV/AIDS⁴ conducted a two day workshop in Kyiv for key national stakeholders to introduce the epidemiological modelling tools of Workbook and Spectrum in order to develop more accurate and up-to-date estimates for HIV/AIDS and ART needs in Ukraine.

The preliminary estimates developed during this workshop were based on data available at the beginning of 2005 as well as the expert opinions among the national specialists that participated in the workshop. However, the workshop identified that key information related to the size of key populations most at-risk for HIV was still lacking in Ukraine. Another key finding of the workshop was that the skills of national specialists need to be improved in the use of the modelling tools of Workbook and Spectrum, as well as their general understanding on how to design and carry out surveys to estimate the size of various population groups.

Pursuant to the workshop recommendations, in mid-2005, the International HIV/AIDS Alliance in Ukraine, in partnership with UNAIDS, WHO and several Ukrainian sociological research institutions facilitated a series of special surveys in order to assess the size of key populations most at-risk for HIV in Ukraine. These surveys focused on developing new national estimates of the number of injecting drug users (IDUs), female sex workers (FSWs) and men who have sex with men (MSM) in Ukraine. The results of these surveys were used as baseline data for the new consensus estimates of the number of people living with HIV/AIDS in Ukraine as well as those in need of ART.

In Autumn 2005, WHO Ukraine conducted two national workshops for representatives of regional AIDS centres on methodological approaches used to estimate the size of populations most at-risk for HIV in Ukraine, and the use of the Workbook and Spectrum modelling programmes to develop HIV/AIDS estimates. Due to lack of reliable local data, the preliminary sub-national estimates developed during the workshop were determined to be of limited value. However, the participants agreed that the available data was sufficient to develop new national estimates, even if these estimates were not sufficiently robust to provide sub-national specificity.

In November 2005, the Ministry of Health, with support from WHO, UNAIDS and the International HIV/AIDS Alliance in Ukraine, organized a final meeting aimed to develop new national consensus estimates for HIV and AIDS in Ukraine. This meeting used the data from the new estimations of size of most at-risk and lower at-risk populations in Ukraine, as well as the latest data from sentinel surveillance in most at-risk populations as inputs for the latest estimates. The meeting participants

⁴ The UNAIDS/WHO Working Group on Global HIV/AIDS and STI Surveillance, initiated in 1996, is the main coordination and implementation mechanism through which UNAIDS and WHO compile the best information available and help improve the quality of data needed for informed decision-making and planning at the national, regional and global levels.

represented a broad number of national governmental and non-governmental organizations as well as international organizations working in the HIV and AIDS field in Ukraine.

In order to refine the estimates that were generated during the consensus meeting, a series of technical meetings were conducted in late 2005 and in early 2006 with the participation of key national stakeholders, and technical support from UNAIDS and WHO. During these meetings, the preliminary data from the consensus meeting were reconciled with the process of development Ukraine's Road Map for achieving Universal Access to Prevention, Treatment and Care and Support by 2010.⁵ During these meetings, the final estimates were agreed upon, and were subsequently reflected in the development of the final version of Ukraine's Road Map for Universal Access, and in this report.

Main results of new estimations of size of most at-risk populations in Ukraine

The methodology used in the development of the new estimates focused on identifying populations in Ukraine which, through their behaviour, are at high risk of infection with HIV, or who are exposed through the risk behaviour of their sexual partners. Estimates of the size and HIV prevalence of these populations allow the total number of HIV infected people in a country or region to be estimated.⁶ In 2005, the International HIV/AIDS Alliance in Ukraine, in partnership with the Ministry of Health of Ukraine, UNAIDS, WHO, and other national stakeholders, conducted a special research study on "Estimation of the Size of Most at Risk Populations for HIV (IDUs, FSWs, MSM)."⁷ This research used as sources additional data, reports and other surveys conducted in the period 2004-2005.

This research was conducted using the following methods for estimating population sizes:⁸

1. Population size estimation using the "anonymous acquaintance" method;⁹
2. Population size estimation using the multiplier method, based on available statistical data and the results of surveys of target populations (behavioral survey and special research using respondent-driven sampling – RDS);
3. Population size estimation using the multiplier method, based on results of general population surveys concerning behavioral practices;
4. Population size estimation using the multiplier method, based on results of research of target populations (capture-recapture sampling – CRC).
5. Population size estimation using the multiplier method, based on results of behavioural surveys among IDUs and FSWs.

This research resulted in new estimations in the size ranges of the each of the key most-at risk populations in Ukraine (IDUs, FSWs, and MSM). In many cases, the research also generated disaggregated data for the size of these populations at the regional level. However, due to the limitations of the research design, it was determined that the accuracy of population estimates for specific regions was of limited value, and thus only the aggregated national estimates would be used for the development of new national estimates for HIV and AIDS. For the purpose of simplicity and operational ease, the figures were rounded to the closest thousandth. The following information summarizes the results of this research on the size of populations most at-risk for HIV at the end of 2005:

▪ Estimated number of IDUs in Ukraine:

⁵ Road Map on Scaling-up Towards Universal Access to HIV/AIDS Prevention, Treatment, Care and Support in Ukraine by 2010 (April 2006).

⁶ Walker N, Stover J, Stanecki K, *et al.* The workbook approach to making estimates and projecting future scenarios of HIV/AIDS in countries with low-level and concentrated epidemics. *Sex Transm Inf* 2004;80 (Suppl 1) :i10–i13.

⁷ This research was supported under the Programme "Overcoming the HIV/AIDS Epidemic in Ukraine," with funding from the GFATM.

⁸ A detailed description of the specific methods was used for which of the different population groups can be found in "Estimating the size of populations at risk for HIV. Issues and Methods," updated July 2003; UNAIDS/WHO Working Group on HIV/AIDS/STI Surveillance, 2003.

⁹ This method was proposed and piloted in 2005 by the Kyiv International Institute of Sociology for this study.

Estimation based on the results of the research by the “anonymous acquaintance” method, using two-stage estimation process	381,125
Minimum estimation by the multiplier method, on the basis of the frequency of “hospitalizations”	324,032
Maximum estimation by the multiplier method, on the basis of the frequency of “hospitalizations”	424,749

The final range used for the national HIV and AIDS estimations was **from 325,000 to 425,000 IDUs**.

▪ **Number of FSWs in Ukraine:**

Estimation based on the results of the research by the “anonymous acquaintance” method, using two-stage estimation process	103,862
Minimum estimation by the multiplier method on the basis of general population survey (FSWs)	202,815
Maximum estimation by the multiplier method on the basis of general population survey (FSWs)	250,325

These three methods provided a broad range for the estimated number of FSWs from 103,862 to 250,325 persons. In light of the high degree of stigmatization of FSWs,¹⁰ it was agreed that the low number of FSWs estimated by the “anonymous acquaintance” method likely represents an underestimation, with the more accurate range between 202,000 and 250,000 persons. Nevertheless, as this higher range represents a substantial increase over all previous estimates the number of FSWs in Ukraine, it was agreed to use the more conservative range for the national HIV and AIDS estimations from **110,000 to 250,000 FSWs**. In Ukraine, there are also frequent occurrences of injecting drug use among commercial sex workers. The estimates of the number of FSWs used for the national estimates do not exclude those FSWs who may also be engaged in injecting drug use, suggesting that there may be overlap between these populations.

▪ **Number of MSM in Ukraine:**

Estimation based on the results of the research by the “anonymous acquaintance” method, using two-stage estimation process	59,504
Minimal estimation by the multiplier method on the basis of general population survey (MSM)	122,215
Estimation by the multiplier method on the basis of general population survey (MSM), with factor of age stratification	126,799
Maximal estimation by the multiplier method on the basis of general population survey (MSM)	176,533

The three methods cited above generated estimates of the number of MSM in Ukraine from 60,000 to 177,000 persons. In light of the high degree of stigmatization of MSM, it was agreed these figures were likely underestimated. It was agreed that a more accurate range for the national HIV and AIDS estimations of the size of the MSM population would be based on data received from the multiplier method based on general population survey, which produced the low population estimation of **177,000 MSM**. The high estimate was based on 3% of adult male population, which is internationally recognized as a conservative estimate of the male population that practices sex with men, which is equivalent to **430,000 MSM**.

▪ **Number of male clients of FSWs in Ukraine:**

Another most at-risk population estimate required for national HIV/AIDS estimations is the number of male clients of female sex workers. Regrettably, no specialized research has been conducted in Ukraine to estimate the size of this specific population. However, previous research conducted among FSWs in Ukraine collected information on the average number of clients each FSW had per week,

¹⁰ Systematic involvement in prostitution is recognized as a criminal offence in Ukraine under article 303 of the Criminal Code of Ukraine.

which ranged from 2 to 6.¹¹ Based on this data, it was agreed to use the average number of three clients per FSW. This figure was then multiplied by the low and high estimates for the number of FSWs, in order to establish the number for the national HIV and AIDS estimations of **330,000 to 750,000 male clients of FSWs**. In the future, more research is required to distinguish between the estimated number of male clients of FSWs per week, and the total number of male clients of FSWs in Ukraine, which has yet to be estimated.

Estimation of size of populations at lower risk

In addition to the size of most at-risk populations, the Workbook methodology for generating national estimates on HIV and AIDS in concentrated epidemics also requires estimates on the size of so-called bridge populations that are at lower risk for HIV. These groups include sexual partners of IDUs, female partners of MSM and partners of clients of FSWs. Specific research has yet to be conducted to develop reliable estimates for these specific groups. It was agreed that the process of developing estimates on the size of these groups would be based on relevant data drawn from recent behavioral studies among most at-risk populations and informed by national and international specialists, with all assumptions being made explicit for each of these populations.

▪ Number of sexual partners of IDUs

The number of sexual partners of IDUs was calculated on the basis of results of a special survey on IDU behaviour conducted in 2004 which indicated that an IDU had on average between 1 and 3 sexual partners.¹² The coefficient of 1.3 sexual partners per IDU was applied to the estimated number of IDUs. The final range used for the national HIV and AIDS estimations was from **422,500 to 552,500 sexual partners of IDUs**.

▪ The number of female partners of MSM

The number of female partners of MSM was calculated on the basis of results of a special survey on MSM behaviour conducted in 2005, which indicated that one-third (33%) of MSM had an average of 3 female sexual partners. The coefficient 1 sexual partner per MSM was applied to the estimated number of MSM. The final range used for the national HIV and AIDS estimations was from **177,000 to 430,000 MSM**.

▪ The number of sexual partners of clients of FSWs

The number of sexual partners of clients of FSWs was calculated on the basis of preliminary research on behaviour among bridge populations conducted in 2004,¹³ which indicated that each FSW client has an additional 2.5 sexual partners. This coefficient of 2.5 sexual partners per FSW client was applied to the estimated number of FSW clients. The final range used for the national HIV/AIDS estimations was from **825,000 to 1,875,000 clients of FSWs**.

HIV prevalence data for 2005 estimates

In 2005, extensive research was conducted in thirteen cities of Ukraine to determine the HIV prevalence among different groups of IDUs, FSWs and patients with sexually transmitted infections (STI patients). This research used the sentinel surveillance methodology, coordinated by the Ukrainian AIDS Centre in collaboration with regional AIDS centres.¹⁴ The results of this research indicated the following ranges for HIV prevalence amongst these groups:

¹¹ Research on "Monitoring of Female Sex Workers Behavior as Component of the Second Generation of HIV Surveillance" (2005, p.32). Survey conducted in 2004 jointly by the State Institute on Family and Youth Affairs and Ukrainian Institute for Social Research, funded by the International HIV/AIDS Alliance.

¹² Research conducted by the State Institute on Family and Youth Affairs and Ukrainian Institute for Social Research and funded by the International HIV/AIDS Alliance. "Monitoring of Injecting Drug Users Behavior as Component of the Second Generation of HIV Surveillance", 2005, p.44.

¹³ International HIV/AIDS Alliance "Report on Bridge Populations," 2006, unpublished.

¹⁴ This research was supported by the International HIV/AIDS Alliance in Ukraine, under the Programme "Overcoming the HIV/AIDS Epidemic in Ukraine" with funding from the GFATM.

Most-at Risk Population Group	Number of Study Sites	HIV Prevalence Range (low-high)
IDUs	13	9.6-66.4%
FSWs	8	8-32%
STI patients	12	0-25.5%

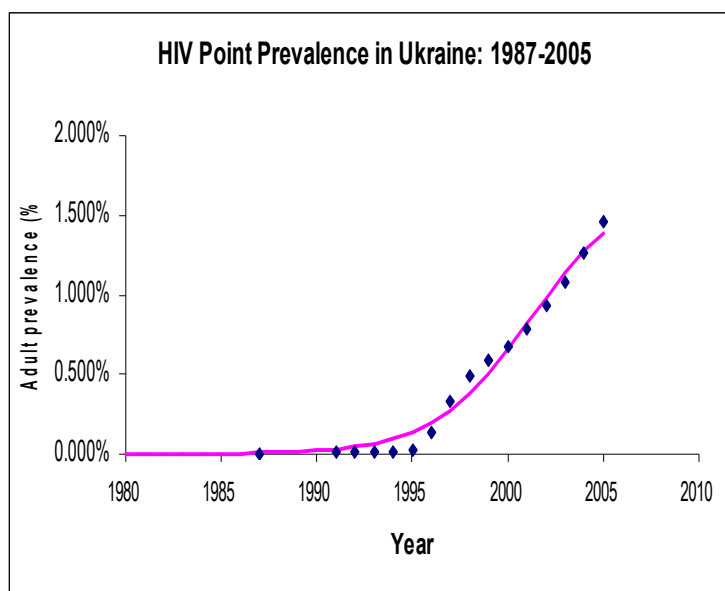
The sentinel surveillance data for IDUs and FSWs were used as the low and high estimates for HIV prevalence among these populations.

HIV and AIDS Estimates in Ukraine at the end of 2005

As Ukraine is a country with concentrated HIV epidemic among specific, most-at-risk populations, new estimates of the size of populations at high and low risk, as well as data on HIV prevalence in these groups, were entered into the Workbook spreadsheet model¹⁵ to develop the point prevalence among adults in Ukraine as of the end of 2005.

The Spectrum Policy Modelling System¹⁶ was used to generate detailed estimates for HIV and AIDS for Ukraine as of the end of 2005, and projections for the period up to 2010. However, the review of results and subsequent consensus data relates only to the estimates generated up to the end of 2005. Inputs were made to the “Epidemiology” section under the AIDS (AIM) module in Spectrum. The HIV prevalence curve was imported from the Workbook-file into Spectrum with the following values:

Year	HIV Point Prevalence
1990	0.00%
1991	0.01%
1992	0.01%
1993	0.01%
1994	0.01%
1995	0.03%
1996	0.14%
1997	0.33%
1998	0.49%
1999	0.59%
2000	0.68%
2001	0.79%
2002	0.93%
2003	1.08%
2004	1.26%
2005	1.46%



The following assumptions were made for the other Spectrum inputs:

- HIV prevalence among adults (15—49) will increase to 2.0 % in 2010;
- The percentage of all pregnant women receiving PMTCT services was 86% beginning in 2003, with the gradual increase to 93% during the period 2004-2010. The rate of transmission in the absence of the programme was 32% (prior to 2003), and with the programme was 10%;
- Spectrum does not permit the actual number of people receiving ART to be entered, but only percentage of those in need of ART. The rate of ART coverage was assumed to be 1% in the period of 1999-2002, 5% in 2003 and 15% in the period 2005-2010.
- Percent of those on ART surviving to the following year was assumed to be 85%.
- The “slow progression” model of HIV progression was used as the variable for the speed with which people infected with HIV die from infection without HAART.

Based on these inputs, the following are the results of new consensus estimates for the number of

¹⁵ Walker N, Stover J, Stanek K, *et al.* The workbook approach to making estimates and projecting future scenarios of HIV/AIDS in countries with low-level and concentrated epidemics. *Sex Transm Inf* 2004; **80** (Suppl 1) :i10–i13.

¹⁶ Spectrum Policy Modelling System, ver. 2.38, Beta 6, Policy Project, 2005.

people living with HIV in Ukraine at the end of 2005:

Summary of Consensus of Estimates on Population Sizes and Prevalence Estimates as of the end of 2005

end of 2000

Names of population groups	Population Size Estimate		HIV Prevalence Estimate (%)		Average number of adults living with HIV
	Low	High	Low	High	
Most-at risk populations (Adults 15-49)					
Injecting Drug Users	325,000	425,000	11.00%	66.00%	144,183
Men who have Sex with Men	177,000	430,000	3.00%	15.00%	27,315
Female sex workers	110,000	250,000	8.00%	31.00%	35,100
Male clients of female sex workers	330,000	750,000	2.00%	5.00%	18,900
Sub-Total	942,000	1,855,000			225,690
Partners of most-at risk populations (Adults 15-49)					
Partners of IDUs	422,500	552,500	8.00%	31.00%	95,063
Female partners of MSM	177,000	430,000	1.00%	3.00%	6,070
Partners of clients of FSWs	825,000	1,875,000	0.60%	2.00%	17,550
Subtotal	1,424,500	2,857,500			118,683

Summary of Consensus Estimates on HIV/AIDS in Ukraine as of the end of 2005

Estimated number of people living with HIV (Adults 15-49)	
Males living with HIV (Adults 15-49)	178,262
Females living with HIV (Adults 15-49)	166,111
Total number of adults in Ukraine (15-49) estimated to be living with HIV	344,373
Prevalence of HIV-infection (Adults 15-49)	1.46%
Percentage of people living with HIV who are IDUs	41.9%
Percentage of people living with HIV who are women	48.2%
Estimated number of people living with HIV (all ages)	
Males living with HIV (all ages)	205,660
Females living with HIV (all ages)	171,940
> including children living with HIV (0-14)	2,850
Total number of people in Ukraine estimated to be living with HIV	377,600
Detailed Estimates of Key Epidemiological Developments in 2005	
Males newly infected with HIV	29,010
Females newly infected with HIV	28,140
Total newly infected with HIV	57,150
Adult Incidence	0.25%
New cases of AIDS - Males	7,310
New cases of AIDS - Females	4,760
New cases of AIDS – Total	12,070
Annual AIDS Deaths – Males	5,380
Annual AIDS Deaths – Females	3,350
Annual AIDS Deaths – Total	8,730

The figures from these new national estimates were also used as the 2005 baseline needs for the national consultations on universal access to prevention, treatment, care and support.

Discussion

These results differ from data previously published for Ukraine, i.e. the previous UNAIDS/WHO estimates as of end 2003 (published in the “UNAIDS 2004 report of the global AIDS epidemic”) where the estimated number of adults was 360,000 (with ranges of 170,000 to 590,000), the estimated adult

prevalence was 1.4% (0.7%-2.3%) and the estimated proportion of women among PLWHA was 33%.

In comparison with the previous estimates, it is noted that the new estimates represent a minor change in the estimated number of people living with HIV and AIDS in Ukraine. However, these new estimates should NOT be interpreted as the numerical or percentage change from the previous estimates for the period 2003-2005. The new national consensus estimates on HIV and AIDS in Ukraine at the end of 2005 are based on the most reliable data, currently available research and reflects the expert opinions among the national and international specialists that participated in the process of generating these estimates. These estimates are considered valid and currently represent the most accurate and comprehensive HIV and AIDS estimates available for Ukraine at the end of 2006. **In order to ensure the accurate and consistent use of these estimates, is recommended that these figures, and their source are cited and used consistently by all national and international partners involved in HIV and AIDS activities in Ukraine.**

It is also important to emphasize that key information, particularly information on key population sizes and HIV prevalence data among these groups is still lacking in Ukraine. It is also agreed that there is some degree of overlap between these groups, i.e. FSWs who inject drugs, and there are currently no effective tools to identify accurately the extent of any double-counting. For these reasons, these HIV and AIDS estimates should be cited and used with a degree of caution until more relevant data becomes available.

Recommendations of the consensus meeting for future steps

1. Finalize HIV/AIDS estimation report and circulate it to all interested parties;
2. Present the report to the Ministry of Health of Ukraine and the National Coordination Council on HIV and AIDS;
3. Use these estimates as the baseline reference for review of the National HIV /AIDS Programme on Prevention and Care for 2004-2008;
4. Recommend all national and international stakeholders to make accurate and consistent use of these estimates for the purposes of communications, planning, programming, and monitoring and evaluation;
5. Recommend all scientists, researchers and policymakers to make accurate and consistent use of these developed for the purposes of estimating the long-term impact of HIV and AIDS in Ukraine, including in studies on the demographic, social and economic impact of HIV and AIDS, and the development of policies to mitigate these impacts;
6. Conduct a follow-up meeting to review and endorse the projections for the period 2006-2010;
7. Support the implementation of the following recommendations related to the research and estimates on the size of most-risk populations:
 - 7.1 The definitions of most-at-risk populations and criteria should be developed and agreed;
 - 7.2 Review criteria used by Ministry of Interior and State Prison Department for inclusion of certain individuals into most at-risk populations, namely IDUs and FSWs;
 - 7.3 The governmental reporting system for drug users should be revised, with data on age and sex should be collected in the relevant statistic reporting forms;
 - 7.4 Recommend that Regional AIDS centres to implement a system for programme monitoring for on IDUs and FSWs that receive HIV prevention and social services at the centres.
 - 7.5 Develop unified guidelines for conducting sociological surveys in various population group to estimate the size of risk groups at national and regional level;
 - 7.6 Pilot test the 'anonymous acquaintance' method for estimating population sizes among IDUs and MSM at the local level;
 - 7.7 Continue research into statistical variables that potentially could be considered as a basis for measuring of multipliers factors in generating estimates of population sizes.
 - 7.8 Plan and implement further research on the size of and HIV prevalence in lower risk groups.